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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,302	02/05/2002	Densen Cao	5061.8A P	1021
7590	05/25/2004		EXAMINER	
Parsons, Behle & Latimer 201 South Main Street, Suite 1800 P.O. Box 45898 Salt Lake City, UT 84145-0898			PADGETT, MARIANNE L	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. 10/072,302  
Applicant(s) Densen Cao  
Examiner M. L. Padgett  
Group Art Unit 1762

AS

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

Responsive to communication(s) filed on 2/5/02 + 8/6/02

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

Claim(s) 1-18 is/are pending in the application.

Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-18 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

### Application Papers

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

All  Some\*  None of the:

Certified copies of the priority documents have been received.

Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

Copies of the certified copies of the priority documents have been received  
in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

### Attachment(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). (2/5/02) (8/6/02)  Interview Summary, PTO-413

Notice of Reference(s) Cited, PTO-892  Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Review, PTO-948  Other \_\_\_\_\_

## Office Action Summary

1. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Use of relative terms that lack clear metes and bounds in the claims, or in a definitive definition in the body of the specification or relevant cited prior art, is vague and indefinite. In claim 1, line 6, see “proximate” which is equivalent of near, neither of which provide a clear defined range of locations with respect to the wand. There is no clear or necessary connection or effect required between wand or elongated heat sink. Also, when are they “proximate” and what effect is intended to be required thereby?

Use of abbreviation, such as “LED”, without on first usage writing out in full the intended mean is improper, as it leaves the actual meaning uncertain or undefined.

In line 18 of claim 1, “said light module” has no antecedent basis, as no such term was previously introduced. For purposes of examination, the examiner will assume that the “L” in “LED” was suppose to stand for --light--, but for “said light module” to previously refer to “a LED chip module”, the abbreviation needs an appropriate definition.

The preambles of claims 1, 7 and 13 are not commensurate in scope with the body of their claim, as “a material” which is inclusive of singular bulk materials, etc., is of different scope than “composite materials”.

Claims 2, 8 and 14 make no sense or are physically impossible. If “power level I” is not the same as “average power output level”, it is presumably the output level during the periods of constant intensity, and it is impossible for the average of a value only periodically applied to be

greater than the same “level I” value continuously applied. Pulsing inherently uses less power or energy than continuous at the same maximum input. Frequently, a high maximum can be used when pulsing, to get the same effect with less total energy input and less residual heating.

Clarification of intent is needed for these claims to be further meaningfully examinable.

As used in claims 1, 7 and 13, “I” goes with “power level” and might be read as Roman numeral one, but in claims 4-6, 10-12 and 16-18, “I” is without the descriptive “power level”, lacks any article showing antecedent basis, and is given units of “amps” instead of those describing power, hence it is unclear how these claims relate to the limitations of the independent claims.

In claim 7, the relationship between the wand and the other components, primary and secondary heat sinks and chips is unclear or undefined. The use of “a longitudinal axis” in both lines 4 and 5 implies, but does not necessitate, a relative orientation, as these different axis need not have any correspondence.

In claim 13, line 8, “active” is a relative term. “Active” with respect to what or how? In line 12, what is meant by “permitting said current...to case photons...” (emphasis added) is completely unclear and unknown. Is “case” the intended word? It makes no sense as used.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kovac et al (WO 99/35995), in view of Kennedy (5,233,283) or Ostler et al (6,282,013 B1).

Kovac et al (WO) teach a hand held curing device that emits light thru a pipe that is angled (equivalent to the claimed wand). The device contains light emitting diodes, referred to variously no dies and/or LED, that may be arranged in an array on a substrate that may have multiple heat sinks illustrated in Figures 2 or 4 on the back of the substrate, which since it is transferring heat from the LED's thereto, must its self be acting as a heat sink, and is elongated perpendicular to the smaller individual heat sinks. The substrate is also illustrated as being attached via a screw to a bar in Figures 1 and 4, while Fig. 6 shows it attached to a conductor line, any of these being conductor materials will further act as heat sinks, are elongated, larger than the small individual heat sinks, and have ends that may be described as distal and proximal, with at least one end "proximate" to the wand/pipe. See pages 17, 19, 21 and 23 for discussion of heat sinks and relevant figures of reference numbers.

Kovac et al (WO) does not discuss pulsed current input and power levels used in powering their LED's, however they do discuss use of AC coupled to DC as a power source for curing devices (page 13, lines 10-15; page 14, line 12-page 15, line 11; page 17, lines 21-32+; page 18. line 21-page 19, line 15). Such arrangements can supply DC, i.e., constant power level,

in a pulsed fashion, or a continuous constant current, depending on the type of transformer used, which is not discussed. Figure 6 uses as rechargeable battery power supply discussed on p. 24, but no discussion of its current form is presented.

Kennedy (abstract) teaches batteries for portable hand held light curing devices as taught by Kovac et al (WO), where the batteries are rechargeable as desired therein, with a square wave signal producing an output that is constant over time. It would have been obvious to one of ordinary skill in the art to use batteries as provided in Kennedy for the battery in Kovac et al (WO)'s Fig. 6 embodiment, because they are specific examples that provide the taught requirements of the primary reference. Note square waves have the claimed current configuration.

Alternately, Ostler et al (013 B1) teach the advantages of modulating the light source power to favorably effect curing operations for devices as claimed, and suggest the use of square waves as exemplary ways of modulation (abstract; Figures 16, 20-23 & 25; column 2, lines 54-67+; column 15, lines 15-24 and 50- column 16, line 68+), hence it would have been advantageous to modulate, as with square waves, the power of Kovac et al (WO) devices when curing to achieve the physical properties as taught by Ostler et al (013 B1), especially as achieving such wave forms is consistent with useful power source taught by Kovac et al (WO).

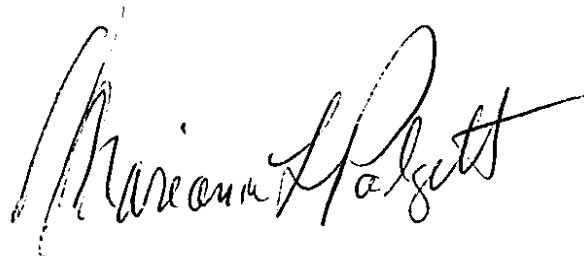
The structure of the LED are not discussed by Kovac et al (WO), but LEDs are inherently multilayer configurations, where orienting layers are generally required to produce the various light emitting effects, hence it would have been obvious to use such in the LEDs of Kovac et al (WO), lacking any critical or unobvious difference provided by a particular configuration that uses such layers.

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4. Yamaguchi et al (6,569,534 B2) is cited as of interest for showing optical material film, such as are employed in the LEDs being formed with epitaxial depositions, hence provided cumulative evidence for the above stated obviousness. Colburn is noted for teaching deposition that form self align film to be used in electronic devices, including those that are hand held.

5. Any inquiry concerning this communication from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can generally be reached on Monday-Friday from about 8:30 a.m. to 4:30 p.m.; fax phone number is 703-872-9306 (all official).

M.L. Padgett/dh  
May 4, 2004  
May 21 & 24, 2004



MARIANNE PADGETT  
PRIMARY EXAMINER